

IN THE SPECIFICATION:

Page 24

Please replace the paragraph commencing at line 16 with the following amended paragraph:

C1 This image coding device differs from the embodiment 1 of Fig. 8 and the embodiment 5 of ~~fig. 5~~ Fig. 5 by the fact that an original image is entirely wavelet-transformed by a wavelet transform portion 131 and, then, wavelet transform coefficients outputted from the wavelet transform portion 131 are rearranged per tile to compose respective tiles.

Page 39

Please replace the paragraph commencing at line 6 with the following amended paragraph:

C2 Referring to Fig. 27, coded information and management information are separated from each other at a management-information separating portion 111 and inputted to a tile wavelet decoding portion 501 that in turn performs tile-by-tile decoding of the coded data using the management information and outputs a decoded image.

AMENDMENTS TO THE CLAIMS:


This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-45. (Canceled)

46. (Currently Amended) An image coding device ~~as defined in claim 44 or 45~~ comprising:

a tile decomposition portion for decomposing image data into tiles each of N pixels x M pixels and outputting the N x M pixels in the tile as an objective data to be coded for a corresponding each of the tiles;

 an adjacent pixel adding portion for providing a objective tile to be coded with adjacent pixels necessary for wavelet transformation of the objective tile when such pixels exist at the periphery thereof;

a wavelet coding portion for extrapolating a predetermined data when no pixel existing at the periphery of the objective tile, decomposing each of the tiles into subbands and outputting only wavelet coefficients of the objective tile;

a management information generating portion for generating management information necessary for independently decoding any desirable tile on a subband-by-subband basis; and

a coded data integrating portion for attaching the management information to coded information to generate a bit stream, wherein the management information includes information on a location of

the coded information for each of the tiles in the bit stream and
information for managing and identifying each of the subbands,

wherein the each adjacent pixel to be attached to the objective tile is multiplied by a weighting function according to a distance from the objective tile, when each of the objective tiles is attached the adjacent pixel by the adjacent pixel adding portion.

47-51. (Canceled)

52. (Currently Amended) ~~An~~—The image coding device as defined in claim 46, wherein the wavelet coding portion is provided with a memory necessary for storing at least data for a tile.

53-56. (Canceled)

57. (Currently Amended) ~~An~~—The image coding device as defined in claim 46, wherein the wavelet coding portion performs multiple times of the subband decomposition process by selectively applying suitable filters for respective subbands.

58-61. (Canceled)

62. (Currently Amended) ~~An~~—The image coding device as defined in claim 52, wherein the wavelet coding portion performs multiple times of the subband decomposition process by selectively applying suitable filters for respective subbands.

63-66. (Canceled)

67. (Currently Amended) ~~An~~ The image coding device having a combination of plural coding models selectable from claim 46 and having a plurality of selectively applicable coding modes, which further includes a flag generator for generating flags indicating respective coding modes and a control portion for controlling the coding device in a mode specified by the flag generated by the flag generating portion, wherein the management Information generating portion generates management information including the flags generated by the flag generating portion.

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68-71. (Canceled)

72. (Currently Amended) ~~An~~ The image coding device having a combination of plural coding models selectable from claim 52 and having a plurality of selectively applicable coding modes, which further includes a flag generator for generating flags indicating respective coding modes and a control portion for controlling the coding device in a mode specified by the flag generated by the flag generating portion, wherein the management Information generating portion generates management information including the flags generated by the flag generating portion.

73-90. (Canceled)

91. (New) An image decoding device for receiving at its input a bit stream including coded information of image data divided into tiles and each separately wavelet-encoded, and management information for managing the coded information, and for decoding a coded image corresponding to a necessary tile or a

necessary resolution, and said management information includes information for specifying a memory location of the coded information corresponding to each tile or each resolution and information for managing and identifying each tile or each resolution, comprising:

an identifying portion for identifying a memory location of the coded information corresponding to the tile or the resolution to be decoded with reference to said management information according to the tile or the resolution to be coded;

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COL-1 a wavelet-decoding portion for conducting wavelet-decoding of the coded data based on the memory location of said identified coded information; and

a tile-combining portion for combining the wavelet-decoded images of each tile;

wherein a desired area of image is decoded in a desired resolution.

92. (New) The image decoding device as defined in claim 91, wherein said management information is arranged at the separate position from said coded information.

93. (New) The image decoding device as defined in claim 91,

wherein a size of the coded information is used as information for specifying the memory location of the coded information corresponding to said each tile or said each resolution.

94. (New) An image decoding device as defined in claim 91, comprising:

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a high resolution coded information extracting portion for extracting the coded information corresponding to high resolution of a specified tile from the bit stream according to said management information; and

a wavelet-decoding portion for conducting wavelet-decoding of the coded data based on the coded information of the decoded low resolution image and the extracted high resolution coded information,

wherein a specified area is selected from areas within images which are decoded at a low resolution according to a user's instructions and decoded at a high resolution.

95. (New) An image decoding device for receiving at its input a bit stream including coded information of image data divided into tiles and each separately wavelet-encoded, and management information for managing the coded information, and for decoding a coded image corresponding to a necessary tile, and the management information includes information for specifying a head

location of the coded information corresponding to each tile and/or information for managing and identifying each tile, comprising:

a wavelet-decoding portion for conducting wavelet-decoding of the coded data based on the management information.

96. (New) The image decoding device as defined in claim 95, wherein a tile ID is used as information for managing and identifying said each tile.

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CON-1 97. (New) The image decoding device as defined in claim 95, comprising a coded data extracting portion for extracting a portion of the coded information from the bit stream, the portion of the coded information corresponding to a given tile based on said management information,

wherein said wavelet-decoding portion conducts wavelet-decoding for the portion of the coded information.

98. (New) The image decoding device as defined in claim 95, wherein a tile-combining portion is provided for combining the wavelet-decoded image of each tile to achieve a desired decoded image.

99. (New) An image encoding device, comprising:

a tile-dividing portion for dividing an image data into tiles;
a wavelet-encoding portion for conducting a wavelet-encoding of each tile separately to generate a coded information;
a management information generating portion for generating management information to manage said coded information; and
a coded data integrating portion for integrating said management information and said coded information to generate a bit stream,

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0.014 wherein the management information includes information for specifying a memory location of the coded information corresponding to each tile or each resolution and information for managing and identifying each tile or each resolution.

100. (New) An image encoding device, comprising:
a tile-dividing portion for dividing an image data into tiles;
a wavelet-encoding portion for conducting a wavelet-encoding of each tile separately to generate a coded information;
a management information generating portion for generating management information to manage the coded information; and
a coded data integrating portion for integrating the management information and the coded information to generate a bit stream,

wherein the management information includes information for specifying a head location of the coded information corresponding

to each tile and/or information for managing and identifying each tile.

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101. (New) The image encoding device as defined in claim 100, wherein a tile ID is used as information for managing and identifying said each tile.
